

CUSTOMER NO.: 24498  
Serial No.: 10/007,864  
Office Action dated: May 3, 2005  
Response dated: October 3, 2005

PATENT  
PU010250

**REMARKS/ARGUMENTS**

This application has been reviewed in light of the Office Action dated May 3, 2005. Claims 8, and 13-16 are pending in the application. Claims 1-7, 9-12 and 17 have been cancelled without prejudice. By the present Amendment, claims 8, 13, and 14 have been amended. No new matter has been added. The Examiner's reconsideration of the rejection in view of the amendment and the following remarks is respectfully requested.

By the Office Action, the Examiner objected to the drawings on the Office Action Summary sheet. However, there were no objections set forth in the text of the Office Action. The Applicant will submit formal drawings upon allowance of the case or upon request of the Examiner in light of a formal objection. Reconsideration is respectfully requested.

By the Office Action, claims 1, 7, 8-11 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,577,255 to Martin (hereinafter Martin) in view of U.S. Patent No. 6,243,247 to Akdag et al. (hereinafter Akdag).

Martin is directed to a lightning protection circuit. Lightning protection circuits are based upon the concept of dissipating a large amount of energy in a short period of time to protect circuits. From the point of view of circuits, static charge is a completely different problem from lightning strikes or power surges.

Martin provides many elements that provide for the dissipation of energy in lightning conditions. In this regard, Martin provides capacitors (C1) and resistors R1 and R2 to absorb energy and to distribute energy between divided sections of a primary transformer winding (L1 and L2). Further protection is afforded by limiting current between winding ends using diodes (e.g., Z1, Z2, Z3, Z4, Z5 and Z6). The scheme of Martin is to reduce the current in the windings by providing many dissipation elements and current limiting elements in the structures and providing multiple connections to ground to ensure that the charge can be dissipated. These ground connections include, e.g., a ground connection between R1 and R2, and two ground connections on the secondary winding side (e.g., below Z6 and above Z7).

Regarding amended claim 8, Martin fails to disclose or suggest an electronic apparatus including a chassis having a chassis ground, a printed circuit board having a ground plane, a transformer and a modem coupled to a winding of the transformer, a voltage and current protection circuit coupled to a primary winding of the transformer, the protection circuit including a fuse to handle current surges wherein the transformer has the primary

winding coupled to an RJ-11 interface, and a secondary winding coupled directly to the modem, and an electrical static discharge (ESD) protection circuit having means for detecting ESD passing through the secondary winding of the transformer and means for diverting the detected ESD to the chassis ground, wherein the ESD detecting means includes two zener diodes coupled to first and second terminals of the secondary winding of the transformer and to the ground plane via a ground coupling, and wherein the diverting means includes a ground leg coupled to the chassis ground and to the ground plane, as essentially recited in amended claim 8.

As set forth in claim 8, an ESD protection circuit is included along with a voltage and current protection circuit. This ESD circuit is provided to protect against the build up of STATIC charge and not necessarily the violent high current associated with a lightning strike as in Martin. ESD protection is typically handled in a completely different way than lightning or electrical power surges. While the goals of both types of designs are to protect circuits, ESD can include a gradual build up of electrically charge over a period of time. As static builds in a winding, charge can accumulate to the point where damage can be imparted to connected circuit elements.

In accordance with the present invention, when sufficient charge builds in a secondary winding as a result of static charge a breakdown voltage for zener diodes Z10 and Z12 may be achieved. Once sufficient charge is built up, the zener diodes (Z10 and Z12) break down and conduct to ground, protecting a modem circuitry from ever seeing higher charges that could cause lockup. Such a configuration by itself as in the present invention is not satisfactory for handling lightning surges. As such, claim 8 has been amended to further clarify the invention and now recites a separate protection circuit (20 in FIG. 1), which is designed to protect the circuits from voltage and current surges in addition to the ESD protection circuit.

Martin provides a complex network of capacitors and diodes to dissipate the energy of a lightning strike through balanced winding sections in order to prevent damage from lightning strikes. Martin is silent to ESD type issues. One skilled in the art designing a lightning protection circuit would not contemplate using the circuit as now recited by the present invention.

In addition, as the Examiner stated, there is no teaching or suggestion in Martin of a ground plane connection via at least one coupling; and a ground leg coupled to a chassis ground to divert the detected ESD to the chassis ground. As mentioned, there is also no teaching or suggestion in Martin of an ESD protection circuit.

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The Examiner cites Akdag to show a connection to a ground plane and a ground leg. Akdag like Martin is directed toward transient surges such as lightning strikes or power surges. Akdag provides a ground plane 24 connected to a system ground by a wire 26. However, Akdag fails to disclose or suggest, *inter alia*, an electronic apparatus, having a chassis having a chassis ground, a printed circuit board having a ground plane, a transformer and a modem coupled to a winding of the transformer, a voltage and current protection circuit coupled to a primary winding of the transformer, the protection circuit including a fuse to handle current surges wherein the transformer has the primary winding coupled to an RJ-11 interface, and a secondary winding coupled directly to the modem, and an electrical static discharge (ESD) protection circuit having means for detecting ESD passing through the secondary winding of the transformer and means for diverting the detected ESD to the chassis ground, wherein the ESD detecting means includes two zener diodes coupled to first and second terminals of the secondary winding of the transformer and to the ground plane via a ground coupling, and wherein the diverting means includes a ground leg coupled to the chassis ground and to the ground plane, as essentially recited in claim 8.

Since the cited combination of Martin and Akdag fails to disclose or suggest, at least, a protection circuit for voltage and current protection, which includes a fuse and an ESD protection circuit. The present claims are believed to be in condition for allowance for at least the reasons stated.

Therefore, claims 8, and 13-16 are believed to be in condition for allowance for at least the reasons stated.

By the Office Action, claims 2-6, and 12-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Martin in view of Akdag and further in view of U.S. Patent No. 6,282,271 to Gutzmer et al. (hereinafter Gutzmer).

It is respectfully submitted that Gutzmer fails to cure the deficiencies of Martin and/or Akdag. Therefore claims 13-16 are believed to be in condition for allowance for at least the reasons stated.

In view of the foregoing amendments and remarks, it is respectfully submitted that all the claims now pending in the application are in condition for allowance. Early and favorable reconsideration of the case is respectfully requested.

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Please charge the \$450 fee for the 2 month Petition for Extension of time, and any other costs that may be associated with the filing of this response to Deposit Account No. 07-0832.

Respectfully submitted,

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